
Table of Contents

M Performance Controls

Subject	Page
E60 M5 Performance Controls	3
Components	3
Instrument Cluster	3
MDrive Menu	4
SMG Drivelogic	5
EDC Electronic Damping	5
DSC	6
DSC - M Dynamic Mode (MDM)	6
Power - M Engine Dynamic Control	7
Program Selection	7
Active Seat Backrest	7
Head-Up Display (HUD)	8
Enabling M-View	9
Setting Brightness	9
Reset to Default	9
Oil Level Indicator	10
E9x M3 Performance Controls	11
The MDrive	11
M Engine Dynamics Control (Power)	12
DSC	12
EDC-K	12
Servotronic	14
"Key-Dependent Settings" Menu	14
Drivelogic Program Selection	14

M Performance Controls

Model: All M models

Production: From Start of Production

OBJECTIVES

After completion of this module you will be able to:

- Recognize the differences in Driver Instrumentation when compared to the base 5 Series production vehicle.
- Recognize and navigate through the MDrive settings.
- Know how to perform an oil level check and what types of measurement or available.
- Recognize the differences in Driver Instrumentation of the M3 when compared to the M5/M6.

E60 M5 Performance Controls

Compared to the 545i, the E60 M5 provides the driver with additional functions relating to the displays, indicators and controls as well as for setting the individual systems.

The M5 instrument cluster is based on the instrument cluster of the E60 545i. There are changes to the visual appearance and functions.

The Head-Up Display (HUD) has been adopted from the E60 as the additional functions relate to the HUD software.

The "M-Drive" menu item in the central information display (CID) has been created by corresponding software adaptations.

The M-Drive settings are stored key-specific in the engine management and are called up accordingly. The engine management can store up to 10 different settings in the memory.



E60 M5 driver information and controls

Components

Instrument Cluster

The instrument cluster in the M5 is based on that of the E60 Series. Corresponding adaptations have been implemented in the visual appearance and scope of functions for use in the M5.

The additional functions are:

- Oil level indication in the on-board computer
- Lighting at terminal 15 ON
- Oil temperature gauge in rev counter
- SMG display with Drivelogic display

The M5 instrument cluster additionally features the following indicator lamps:

- MDM for DSC dynamic mode
- M-Drive configuration is activated
- Light ON



MDrive Menu

There is a menu in the iDrive system that allows the driver (key dependent) to customize certain system settings in the vehicle when entering the Sport Mode via the M button on the steering wheel (presetting the characteristics).

This feature is referred to as MDrive.

To access the MDrive menu use the following path in the iDrive system:

Main Menu => i Menu => Vehicle Settings => MDrive Menu

The following options can be preset in the menu:

- SMG Drivelogic
- EDC
- DSC
- Power
- Active Backrest
- Head-Up Display
- Reset to Default



Activating Settings

Press the MDrive button on the steering wheel.

The indicator lamp in the instrument cluster lights up. The settings made on the Control Display for the functions contained in MDrive are active.

Deactivating Settings

Pressing the MDrive button on the steering wheel a second time deactivates MDrive.

Even with MDrive activated, you can change individual settings outside MDrive, e.g. with the buttons in the center console. To reactivate all settings made for MDrive on the Control Display press the button twice.



Note: If the indicator lamp flashes after pressing the button, then MDrive was unable to react, as the ABS Anti-lock Brake System or DSC Dynamic Stability Control is currently controlling the vehicle stability. Press the button again when the indicator lamp no longer flashes.

SMG Drivelogic

You can pre-select or activate your preferred driving program with the MDrive button on the steering wheel for the SMG gearbox.

Selecting "SMG Drivelogic" and press the controller (the first setting is selected).

Turning the controller will set Drive mode, Sequential mode, or "Unchanged".

“D” Drive Mode signifies the gearbox will go to the automatic mode.

“S” Sequential Mode signifies the gearbox will go to the manual mode.

“Unchanged” signifies the gearbox retain whatever the current settings are when the MDrive button on the steering wheel is selected.

After selecting the Drive mode, the Program mode can be pre-selected.

Here, the driver can choose from program numbers (balanced/dynamic) to 6 (sporty/purist).

Note: The sporty/purist driving program 6 is only available with the DSC Dynamic Stability Control deactivated. When DSC is activated, the system switches from driving program 6 to 5.

EDC Electronic Damping

You can pre-select or activate your preferred driving program with the MDrive button on the steering wheel for the SMG gearbox.

You can choose from three programs:

“Comfort” Program - Select the "Comfort" program if you want comfort-oriented coordination of shock absorbers and steering.

“Normal” Program - The "Normal" program offers a balanced mixture of the comfort and the sports program.

“Sport” Program - Select the "Sport" program if you want a consistently sporty coordination of shock absorbers and steering.

DSC

The preselection of the DSC setting for the MDrive program offers 4 options:

“Unchanged” signifies the gearbox retain whatever the current settings are when the MDrive button on the steering wheel is selected.

“Off” signifies that the DSC system will be entirely disabled.

“On” signifies that the DSC system will be on.

“M Dynamic Mode” signifies that the DSC system’s MDM program will be activated.

■ DSC - M Dynamic Mode (MDM)

The M Dynamic Mode is a mode of the Dynamic Stability Control (DSC). It enables driving with greater longitudinal and lateral acceleration on dry road surfaces, however with limited vehicle stability. The system does not provide stabilizing intervention by reducing the engine output and braking at the wheels until the absolute driving limit is reached. Steering corrections by the driver may also be required in this driving state.

The M Dynamic Mode is deactivated each time the engine is started.

MDM indicator lamp The indicator lamp goes out shortly after the engine is started. The indicator lamp stays lit: M Dynamic Mode is activated. The indicator lamp lights up continuously and the DSC indicator lamp flashes: the M Dynamic Mode is active and controls the drive and braking forces.

Note: To Deactivate MDM again, press the button on the steering wheel again; the MDM indicator lamp goes out.

WARNING!!!

With the M Dynamic Mode activated, stabilizing interventions are only carried out to a reduced degree. To maintain vehicle stability, drive with DSC activated and the M Dynamic Mode deactivated whenever possible.

Power - M Engine Dynamic Control

With M Engine Dynamic Control you can influence how sporty the reaction of your vehicle to accelerator pedal movements is to be. Three programs are available for engine control.

“P 400” Program - In the "P 400" program the engine reacts gently to the movement of the accelerator pedal. This is ideal for city driving or driving on snow. In the process, the fuel consumption is minimal as the engine output is reduced.

“P 500” Program - The "P 500" program provides maximum performance and more spontaneous reaction of the engine to accelerator pedal movements.

“P 500 Sport” Program - In the "P 500 Sport" program the engine reacts especially sporty and spontaneously with maximum performance reaction to accelerator pedal movements.

■ Program Selection

Each time the engine is started, the "P 400" program is activated.

Press the POWER button to activate the "P 500" program. Pressing the POWER button repeatedly switches between the programs "P 400" and "P 500".

Note: You can only activate the “P 500 Sport” program with MDrive. For the programs “P 500” and “P 500 Sport” the LED in the POWER button lights up.

Active Seat Backrest

First set a comfortable backrest width. Based on the backrest width set, the lateral support is automatically adapted to the current driving situation.

The adaptation of the backrest width and the speed of the adjustment vary depending on the program. You can select from among three programs from comfort to sport. The "Sport" program provides for increased lateral support on both sides when driving through a quick succession of alternating curves.

Three programs are available under active seat backrest control are:

“Comfort” program

“Normal” program

“Sport” program

Head-Up Display (HUD)

The "M-view" has been added to the Head-Up Display. This expansion feature, however, is implemented only in the software of the HUD control unit.

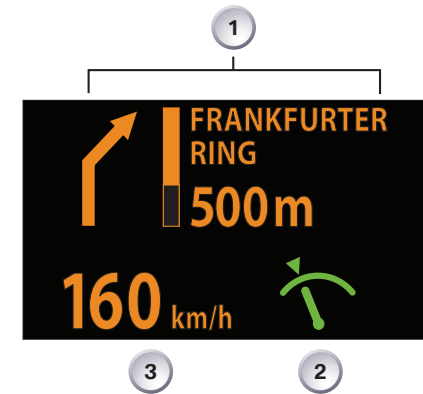
The M-view can be configured in the "Display Settings" menu in the i-Drive or with the M-Drive and activated via the M-Drive Manager.

The Head-Up Display in the M-view can show the following information:

- All Warnings
- Engine Speed with shift lights in the speed indicator (not the absolute value)
- Road Speed
- Engaged Gear.



Index	Explanation	Index	Explanation
1	Current Engine Speed Highlighted	4	Speed
2	Advance Warning Field	5	Gear Display
3	Red Warning Field		



Index	Explanation
1	Navigation Instructions
2	Cruise Control Status
3	Speed

Note: The visibility of the displays in the Head-Up Display is influenced by:

- **Sunglasses with certain polarization filters**
- **Certain seating positions**
- **Objects on the cover of the Head-Up Display**
- **Wet road surface and unfavorable lighting conditions**

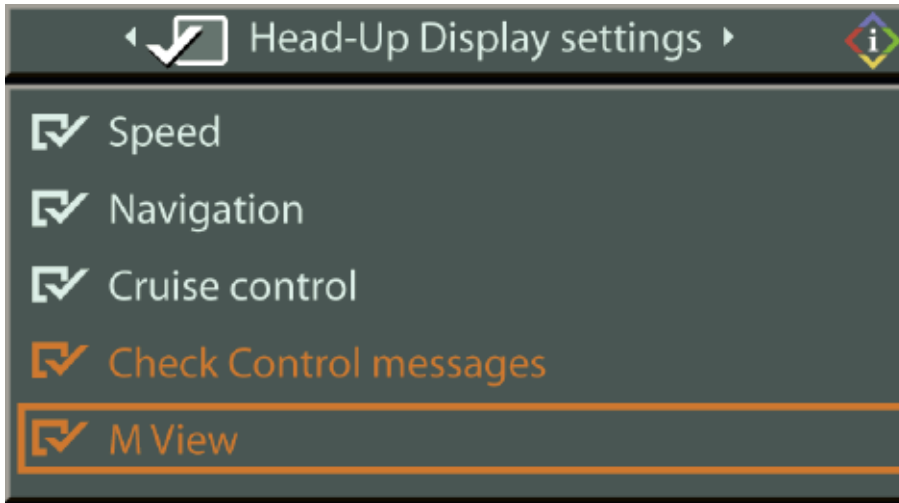
■ Enabling M-View

To select M-View you have to utilize the display settings Menu of the iDrive system.

With the engine running or the ignition switched on:

Press the button to activate or deactivate the Head-Up Display.

1. Press the button (This opens the start menu).
2. Press the controller (Opens the i-Menu).
3. Select "Display settings" and press the controller.
4. Select "Head-Up Display" and press the controller.
5. Select desired information of Head-Up Display.
6. Press the controller.



When M View is selected, not all information usually selectable for the HUD are not available. Information unavailable in the M view appears on the Control Display in gray and cannot be selected.

The settings are stored for the remote key currently in use.

Note: The M view for the Head-Up Display can also be programmed into the MDrive button on the steering wheel.

■ Setting Brightness

The brightness of the display is automatically adapted to the ambient lighting conditions. However, you can change the base setting. With the low beams switched on, the brightness can also be adjusted with the knurled wheel of the instrument lighting.

To adjust brightness:

1. Open the start menu.
2. Press the controller to open the menu.
3. Select "Display settings" and press the controller.
4. Select "Brightness" and press the controller.
5. Move the controller to the left to select "Head-Up Display".
6. Turn the controller until the desired setting is selected.

The setting is stored for the remote control currently in use.

Reset to Default

This option allows all the setting in MDrive to revert to factory or default settings.

Oil Level Indicator

The M5 is equipped with an electronic oil level indicator. The display is selected with the BC control.

The oil level is indicated in the information field of the on-board computer (BC) in the instrument cluster.

The sensor is the quality and condition sensor (QLT) from the E65. The entire measurement logic is resident in the engine management (MS_S65) control unit.

The long-term value last stored is shown after starting the engine.

Basically there are two different measuring methods:

- Long-term Measurement
- Quick Measurement

Note: For more information regarding the oil level indicator refer to the M Engine Management section of this training material.

E9x M3 Performance Controls

The MDrive

The MDrive menu known from the E6x M5/M6 is also available in the E9x M3 if equipped with the navigation system.

Starting from the iDrive main menu, the MDrive menu can be called up by pressing on the iDrive controller and selecting M settings.

The overall setting is called up/activated by pressing on the M button on the steering wheel. Pressing the M button again or restarting the vehicle deactivates the settings. The settings can, of course, be retrieved again using the M button.

The following is a list of menu items with selection options that are currently available in the MDrive menu:

- M Engine Dynamics Control (Power)
 - "Unchanged"
 - "Normal"
 - "Sport"
 - "Sport Plus"

- DSC
 - "Unchanged"
 - "OFF"
 - "ON"
 - "M Dynamic mode"

- Servotronic
 - "Normal"
 - "Sport"

- EDC-K (only if fitted)
 - "Unchanged"
 - "Comfort"
 - "Normal"
 - "Sport"

By selecting "Unchanged", when the M button is pressed (i.e. the settings in the MDrive menu are called up), the current settings of this system are retained.

Example:

The driver has deactivated the Dynamic Stability Control function using the DSC button.

- MDrive setting: M Engine dynamics control "Sport Plus"; DSC "Unchanged"; Servotronic "Sport".

The driver presses the M button on the steering wheel to call up the M settings.

- Only the "Sport Plus" and Servotronic "Sport" settings for M engine dynamics control are activated. DSC remains deactivated.

M Engine Dynamics Control (Power)

Apart from "Unchanged", three engine control programs are available:

"Normal", "Sport" and "Sport Plus".

The options determine how spontaneously the engine responds to actuation of the accelerator pedal. The maximum engine power is not changed.

Using the power button in the center console, the driver can only choose between; "Normal" and "Sport".

"Sport Plus" is only available in the MDrive menu.



E9x M3 with manual gearbox shown

DSC

Apart from the "Unchanged" setting, in the DSC submenu, the options "OFF", "ON" and "M Dynamic mode" can be selected.

If "M Dynamic Mode" is selected, the Dynamic Stability Control (DSC) permits higher slip values at the wheels. The system does not activate the stabilizing function until very close to the handling limit range, when it influences engine output and/or actively engages the brakes.

In "OFF" mode, an experienced sports car driver can also completely deactivate the DSC function.

Using the DSC button in the center console, the driver can switch between "OFF" and "ON" or if "M Dynamic Mode" is active, between "M Dynamic Mode" and "OFF".

"M Dynamic Mode" is only available in the MDrive menu.

EDC-K

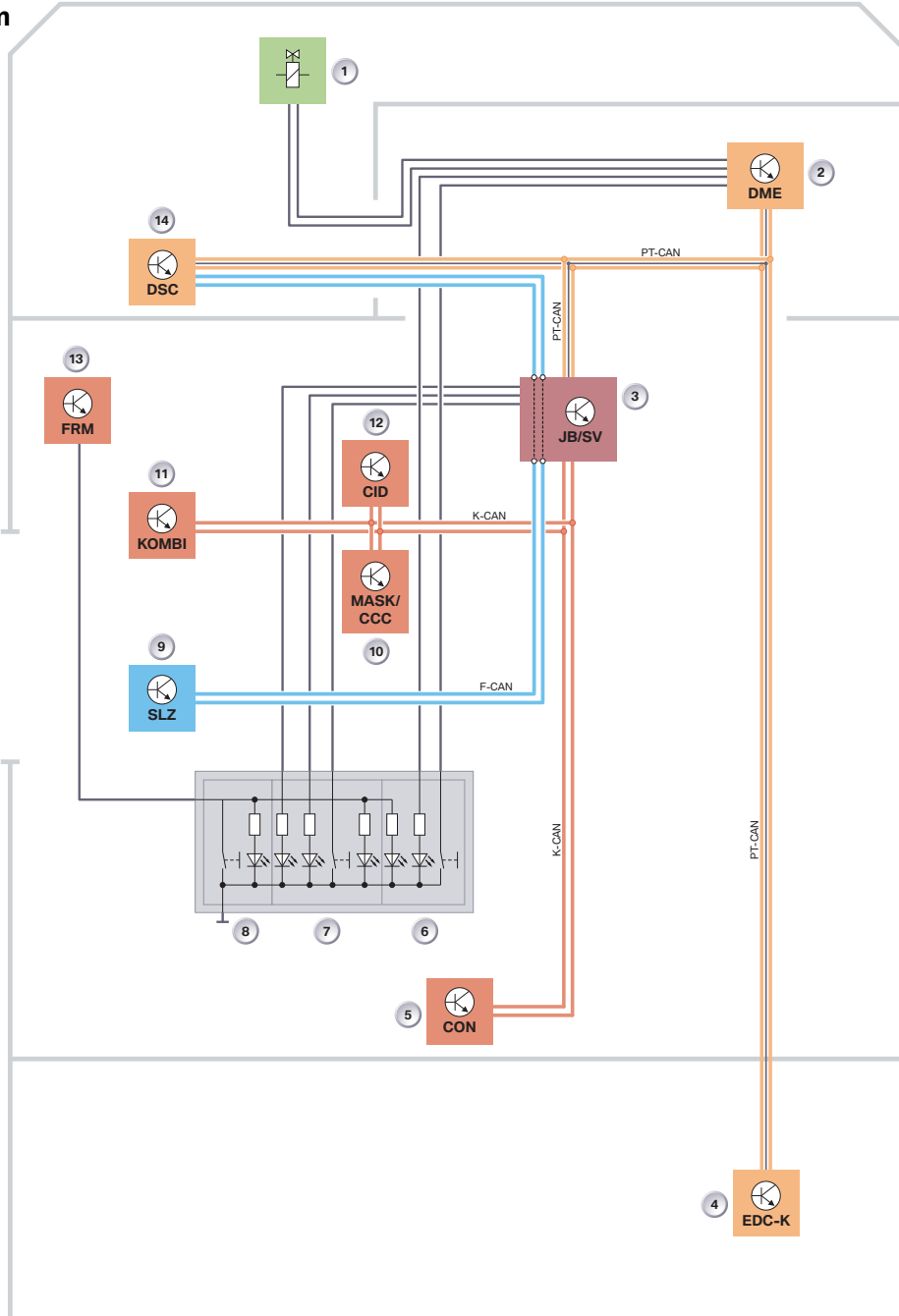
If continuous Electronic Damper Control is fitted together with MDrive, in addition to "Unchanged", three EDC programs can be selected in the MDrive menu:

"Comfort", "Normal" and "Sport".

The driver can use the EDC button in the center console to switch sequentially between the three programs.

Note: For further information regarding EDC-K and DSC refer to the Chassis and Suspension section of this training material.

M Drive Bus Diagram



Index	Explanation
1	Servotronic valve
2	DME MSS60
3	Junction Box distribution box
4	Electronic Damping Control controller
5	iDrive controller
6	POWER button
7	EDC button
8	DSC button
9	Steering column switch cluster
10	Multi audio system controller/Car Communication Computer
11	Central Information Display
12	Instrument cluster
13	Footwell module
14	Dynamic Stability Control

Servotronic

The settings that can be selected for the Servotronic steering function are "Normal" and "Sport". Depending on the selection, the appropriate characteristic curve for power assisted steering is active.

This selection option is only available in the MDrive menu. Without MDrive, the customer has no option, and a fixed programmed speed dependent characteristic curve is used.

"Key-Dependent Settings" Menu

Under "M settings", the "Key-dependent settings" menu is also available as well as the MDrive menu.

This allows key-specific settings for certain MDrive menu items.

M engine dynamics control and EDC settings are currently possible, which are assigned to the specific key used during the configuration (configuration => ZV closing action => memorizing).

Under the M engine dynamics control menu item, "Normal" or "Sport" can be selected.

In the EDC menu item, the options "Comfort", "Normal" or "Sport" can be selected.

Drivelogic Program Selection

The Drivelogic controls and indicators in the E9x M3 with the M DCT transmission option are similar to the SMG II and SMG III vehicles.

The Drivelogic program switch gives you the option of choosing between six driving programs in sequential mode and five driving programs in drive mode.

The selected driving program is displayed as a bar chart in the instrument cluster.

In sequential mode the switching speed is affected which has a direct effect on the shifting firmness.



Index	Explanation
1	Selector lever
2	Button to increase the Drivelogic program
3	Drivelogic program selector button
4	Button to reduce the Drivelogic program

E9x M3 M-DCT transmission electronic shifter (M GWS)

The sixth shift program can only be selected when the DSC function is de-activated.

In drive mode the shift points and the shifting speed are affected, as a higher shift program means a higher gear changeover speed and thus a higher shifting speed.

In addition to the Drivelogic program selection, the shift time is also dependent on the position of the accelerator pedal and how quickly it is operated.

Note: For further information regarding the M-DCT transmission refer to the Drivetrain section of this training material.